socrative

Regularization/R (Q7L8)   45% (9/20)

❌ 1. **In Poisson regression...**

A   The asymptotic distribution of the maximum likelihood estimates is multivariate normal.

B   The distribution of the maximum likelihood estimates is multivariate normal.

C   The asymptotic distribution of the maximum likelihood estimates is multivariate Poisson distribution.

D   I do not know

❌ 2. **In the case of intercept-only model**

A   The mean of the dependent variable equals the exponential value of intercept

B   The mean of the dependent variable equals the intercept

C   The mean of the dependent variable equals 0

D   I do not know

❌ 3. **ln(lambda) = 0.6 - 0.2* female [lamda = the average number of articles] Note: e^(-0.2)=0.78**

A   One unit increase in female brings a 0.2 decrease in ln(lambda).

B   Being female decreases the average number of articles by 0.78 percent

C   Being female decreases the average number of articles by 22%

D   I do not know

✅ 4. **In the multiple linear regression, we assume that...**

A   The number of observations is much larger than the number of variables (n>>p)

B   The number of observations is slightly larger than the number of variables (n>p)

C   The number of observations equals than the number of variables (n=p)

D   The number of observations is lees than the number of variables (n<p)

E   It is not important

F   I do not know

✗ **5. The way of solving the problem of a large number of variables is...**

(A) Subset Selection & Shrinkage (Regularization)

(B) Shrinkage (Regularization) & Maximum Likelihood estimation

(C) Dimension Reduction & OLS estimation

(D) I do not know

(E) The absence of the right answer

✗ **6. The bias of an estimator (e.g. z^) equals...Hint: the OLS coefficients are unbias :)**

(A) $E(z^{\wedge})$ - z

(B) $E(z^2) - [E(z)]^2$

(C) $[E(z^2) - E(z)]^2$

(D) $E(z^2)$

(E) I do not know

✗ **7. The main idea of regularization is**

(A) To introduce a small amount of bias in order to have less variance.

(B) To introduce a small amount of variance in order to have less bias.

(C) To introduce a small amount of variance and bias in order to have less bias.

(D) I do not know

✗ **8. With which function we can show regularization in R**

(A) glmnet()

(B) regular()

(C) lm()

(D) glm()

(E) I do not know

✓ **9. How the tune of any parametr can be made**

(A) using Cross validation

(B) It is impossible

(C) I do not now

(D) using larger sample

(E) only having population

✓ **10. Elastic Net is**

(A) the combination of L1 and L2 regularization

(B) the combination of L2 and L3 regularization

(C) is independent from other types of refularization

(D) I do not know

(E) not a type of regularization

✗ **11. Regularization is used only for**

(A) Poisson Regression

(B) Linear Regression

(C) Logistic Regression

(D) any regression

(E) I do not know

✓ **12. Regularization can solve the problem of**

(A) heteroscedasticity

(B) multicollinearity

(C) autocorrelation

(D) I do not know

✓ **13. As a result of regularization we will have**

(A) smaller slope than in case of OLS

(B) larger slope than in case of OLS

(C) the slope remains the same

(D) I do not know

✓ **14. The ridge coefficient estimates shrink towards zero**

(A) when lambda increases

(B) when lambda decreases

(C) when lambda = 0

(D) I do not know

✗ 15. Which one can shrink the slope all the way to 0?

- (A) Lasso
- **(B) Ridge**
- (C) Regression
- (D) I do not know

✗ 16. When lambda = 0, we have

- (A) Ridge
- **(B) Lasso**
- (C) EL
- (D) Regression
- (E) I do not know

✗ 17. When alpha = 0, we have

- (A) Ridge
- (B) Lasso
- (C) EL
- (D) Regression
- **(E) I do not know**

✓ 18. ...variables need to be incorporated in the model according to domain knowledge...

This statement is true for...

- **(A) Ridge**
- (B) Lasso
- (C) EL
- (D) Regression
- (E) I do not know

✓ 19. Which function can help to perform cross-validation for regularization in R?

- **(A) cv.glmnet()**
- (B) cros_val()
- (C) glmnet(method = "cv)
- (D) I do not know

✓ **20.   Why we use set.seed() in R?**

Ⓐ To have universal result

Ⓑ To perform better result

Ⓒ To have random models

Ⓓ I do not know